

### Scientific Information Regarding the COVID-19 Vaccines

Regarding the Moderna and Pfizer vaccines:

- The Moderna and Pfizer vaccines do not contain any fetal/embryonic cells and are not produced using fetal cells.
- The Moderna and Pfizer vaccines used HEK 293 cells in testing.
- The HEK 293 cells do not come directly from a fetus/embryo.
- HEK 293 cells are descendants/clones of kidney cells procured from a legally aborted fetus in 1973.

Regarding the Johnson & Johnson vaccine:

- The Johnson & Johnson vaccine does not contain any fetal cells.
- The Johnson & Johnson vaccine used PER.C6 cells in the production process, but are subsequently removed from the vaccine during the process.
- The PER.C6 cells do not come directly from a fetus/embryo.
- PER.C6 cells are descendants/clones of retinal cells procured from a legally aborted fetus in 1985.

### Analysis of SARS-CoV-2 (COVID-19) Vaccines

Sponsor(s) <sup>1</sup>	Strategy <sup>2</sup>	Design & Development	Production	Confirmatory Lab Tests
Moderna, Inc. with National Institutes of Health	<ul style="list-style-type: none"> <li>• mRNA vaccine</li> <li>• non-replicating</li> <li>• “mRNA-1273”</li> <li>• T7 RNA polymerase-mediated transcription from DNA plasmid template</li> <li>• LNP (lipid nanoparticle) encapsulated</li> <li>• Given: Intramuscular 2 doses (4 weeks apart)</li> </ul>	Sequence designed on computer	No cells used <u>Corbett et al., Nature, 5Aug2020</u>	<ul style="list-style-type: none"> <li>• protein test &amp; pseudovirus</li> <li>• HEK293 cells</li> <li>• Plaque reduction neutralization</li> <li>• Vero monkey cells</li> <li>• <u>Corbett et al., Nature, 5Aug2020</u></li> </ul>
Pfizer and BioNTech	<ul style="list-style-type: none"> <li>• mRNA vaccine</li> <li>• non-replicating</li> <li>• “BNT-162a1, b1, b2, b3, c2”</li> <li>• nucleoside-modified mRNA <i>in vitro</i> transcribed by T7 polymerase from a plasmid DNA template</li> <li>• LNP (lipid nanoparticle) encapsulated</li> <li>• Given: Intramuscular</li> <li>• 2 doses (3 weeks apart)</li> </ul>	Sequence designed on computer	No cells used <u>Vogel et al., bioRxiv 8Sept2020</u>	<ul style="list-style-type: none"> <li>• protein test &amp; pseudovirus</li> <li>• HEK293 cells</li> <li>• Neutralization assay</li> <li>• Vero monkey cells</li> <li>• <u>Vogel et al., bioRxiv 8Sept2020</u></li> </ul>
Janssen Research & Development, Inc. Johnson & Johnson	<ul style="list-style-type: none"> <li>• Replication-deficient</li> <li>• Adenovirus vector</li> <li>• “Ad26.COV2-S”</li> <li>• Given: Intramuscular</li> <li>• 1 dose (some trials use 2 doses, 8 weeks apart)</li> </ul>	PER.C6 cells	PER.C6 cells <u>Tostanoski et al., Nature Medicine, 3Sept2020; J&amp;J, 30March2020; Janssen Vaccine Technologies</u>	No cells used.

Source: Prentice D. (2020) Update: COVID-19 Vaccine Candidates and Abortion-Derived Cells Lines. Charlotte: Lozier Institute. Accessed November 3, 2021. Modified for space considerations.

<https://lozierinstitute.org/update-covid-19-vaccine-candidates-and-abortion-derived-cell-lines/>

Other vaccines, medications, and treatments also use these cloned cells (HEK 293 and/or PER.C6) in their development, including testing and production. These include:

Tylenol/Acetaminophen	Aspirin	Albuterol
Azithromycin	Benadryl	Claritin
Enbrel	Ex-Lax/Colace	Lidocain
Remdesivir	Advil/Motrin/Ibuprofen	Lipitor
Maalox	MMR Vaccine	Aleve/Naproxen
Pepto Bismol	Preparation H	Prilosec OTC
Senokot	Simvastatin	Sudafed/Suphedrine
Mucinex	Tums/Calcium Carbonate	Tylenol
Tylenol Cold & Flu	Delsym/Robitussin	Hydroxychloroquine
Zocor	Metformin	Ivermectin
Varicella/Chickenpox Vaccine	Rubella Vaccine	Hepatitis A vaccine

Sources:

Schneider MP. (2021) If Any Drug Tested on HEK-293 is Immoral, Goodbye Modern Medicine. Patheos. Accessed November 3, 2021  
<https://www.patheos.com/blogs/throughcatholiclenses/2021/01/if-any-drug-tested-on-hek-293-is-immoral-goodbye-modern-medicine/>

The College of Physicians of Philadelphia. Human Cell Strains in Vaccine. Accessed on November 19, 2021.  
<https://www.historyofvaccines.org/content/articles/human-cell-strains-vaccine-development>

A more comprehensive list can be found here: Kramer C, et al. (2008) A Composite Model for hERG Blockade. ChemMedChem. 3(2): 254-265.